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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _2/13/09_.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1,3-8 and 10-23_ is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1,3-8 and 10-23_ is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
      Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
      Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1.   This communication is responsive to application 10/749,959 the amendment filed

on 2/13/09. Claims 1, 3-8, 10-23 are pending and represent system, method and

computer readable for lightweight input/output protocol.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

3.   Claims 1, 6, 7 & 23 only appear to be producing a tangible result which enables

any usefulness of having determined the request is to be responded to by constructing

the web page. Under all other conditions (*such as, an I/O processing phase, wherein*

read operations are implemented using RDMA and write operations are implemented

using send operations, wherein the write operations are not implemented using RDMA),

the final result achieved is a determination, which has not been used nor made

available for use in the disclosed practical application. As such, no usefulness of having

made the determination can be realized.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5.   Claims 1, 6, 7 & 23 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. "authenticate, by the client and the server ". The examiner could not locate the Amended portions from the Specification. Attorney required to point out exactly where in the Specification support the amended claims.

Claim Rejections - 35 USC § 112

6.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7.   Claims 1, 6, 7 & 23 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It's unclear to the examiner what does it mean by stating "authenticate, by the client and the server"? how can the authenticating could by check by both the client and the server?

8.   Claims 1, 6, 7 & 23 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention. It's unclear to the examiner what does it mean by stating "what is the credit request represent for"?

9.   Claims 1, 6, 7 & 23 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It's unclear to the examiner what does it mean by stating "the credits the client have to give up and the number of credits that has newly allocated"? What is the "give up and newly allocated" represent for? and "allocating or giving up what"?

10.   Claims 1, 6, 7 & 23 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It's unclear to the examiner what does it mean by stating "positive credit…credits that the sever has newly allocated"? Allocating what? Or "negative credit…credit that the client has to give up"? The applicant should state it clear how to represent the positive and negative because granting and rejecting could be apply to those claim limitations.

11.   Claims 1, 6, 7 & 23 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It's unclear to the examiner what does it mean by stating "authenticate, by the client and the server"?

12.   Claims 1, 6, 7 & 23 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It's unclear to the examiner what does it mean by

stating "in response to receiving the message from the client, send by the server, a

response for each message received from the client"?   What exactly does the applicant

trying to accomplish through this step?

13.   Claims 1, 6, 7 & 23 rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention. It's unclear to the examiner what does it mean by

stating "an I/O processing phase, wherein read operations are implemented using

RDMA and write operations are implemented using send operations, wherein the write

operations are not implemented using RDMA"?   What exactly does the applicant trying

to accomplish through this step? What is the final result for this claim limitation? What

is the main invention? What is it the applicant trying to accomplish through this claim

limitation?

Claim Rejections - 35 USC § 103

14.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

15.   Claims 1-3, 5-8, 10-16, 18 and 20-23 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Pandya, Patent No. 2004/0010612 A1 in view of Henninger,

Patent No. 5,499,371, and further in view of Wong, Patent No. 2004/0003069 A1.

Pandya teaches the invention substantially as claimed including high

performance IP processor using RDMA (see abstract).

16.   As to claim 1, Pandya teaches a system for offloading an input/output (1/O) task

comprising:

a client running on the first computer ([0091] and Fig. 7 - client on the left);

a server running on the second computer ([0091] and Fig. 7 - server on the right);

and

at least one remote direct memory access (RDMA) channel linking the first

computer and the second computer ([0068] and Fig. 35 - client/server RDMA transfer),

wherein the first computer and the second computer communicate in accordance with a

protocol comprising:

a network discovery phase ([0100] - discovery), wherein the network discovery

phase is configured to:

Deleted: and

create, by the client, an RDMA connection to the server over a shared RDMA-

capable provider (figure 37); and

authenticate, by the client and the server, the RDMA connection, wherein the

network discovery phase configured to authenticate the RDMA connection (page 10,

paragraph 115; Pandya discloses that the system of authenticating the packet) is

configured to:

in response to receiving the message from the client, send by the server, a

response for each message received from the client (page 5, paragraph 93; Pandya

discloses that the system of response transactions), and

an I/O processing phase ([0072] -I/O processing), wherein read operations are implemented using RDMA ([0140]).

But Pandya failed to teach the claim limitation wherein send, by the server, a credit request message, wherein the credit request message comprises one of the following: the number of credits the client have to give up and the number of credits that the server has newly allocated for use by the client; receive, by the client, the credit request message; in response to the client receiving the credit request message, send, from the client to the server, one of the following: one message if an information field in the credit request message is positive, wherein the positive credit request message comprises credits that the server has newly allocated for use by the client, and at least one message if the information field in the credit request message is negative, wherein the negative credit request message comprises one message for each credit that the client has to give up; write operations are implemented using send operations, wherein the write operations are not implemented using RDMA.

However, Henningger teaches method and apparatus for automatic generation of object oriented code for mapping relational data to objects (see abstract). Henninger teaches the limitation wherein write operations are implemented using send operations, wherein the write operations are not implemented using RDMA (col 10, lines 33-45; col 11, lines 55-60; col 12, lines 3-5 & 15-17).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Pandya in view of Henninger so that the system would be able to retrieve query command from the database for a particular object instance. One would

be motivated to do so to map information between a database and an object-oriented

application.

However, Wong teaches selective early drop method and system (see abstract).

Wong teaches the limitation wherein send, by the server, a credit request message,

wherein the credit request message comprises one of the following: the number of

credits the client have to give up and the number of credits that the server has newly

allocated for use by the client (figure 5-6); receive, by the client, the credit request

message (figure 3); in response to the client receiving the credit request message,

send, from the client to the server, one of the following: one message if an information

field in the credit request message is positive, wherein the positive credit request

message comprises credits that the server has newly allocated for use by the client, and

at least one message if the information field in the credit request message is negative,

wherein the negative credit request message comprises one message for each credit

that the client has to give up (page 1, paragraph 5-6 & 10-11; page 2, paragraph 27, 30

& 32).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify Pandya in view of Wong so that the system would be able to decide

based upon the policy terms agreed upon between a client and a ISP the quality of

service provided to a subscriber. One would be motivated to do so to avoid the

congestion and packet loss for the qualified subscribers.

17.   As to claim 3, Pandya, Henninger and Wong teach the system of claim 1 wherein

the protocol is used in association with a second network protocol ([0008]).

18.   As to claim 5, Pandya, Henninger and Wong teach the system of claim 3 wherein

the second protocol is a common internet file system (CIFS) ([0008]).

19.   As to claim 8, Pandya, Henninger and Wong teach the method of claim 7

wherein the discovering at least one shared RDMA-capable provider further comprises:

        obtaining, by the client, a server request resume key from the server ([0120]);

        opening, by the client, a pipe to the server ([0124] - pipes);

        sending, by the client over the pipe, a negotiate request ([0105]); and

        sending, by the server over the pipe, a negotiate response including a minimal

list of common providers ([0105]).

20.   As to claim 10, Pandya, Henninger and Wong teach the method of claim 9,

further comprising: registering, by the client, one or more files for use with the server

over the RDMA connection ([0098]).

21.   As to claim 11, Pandya, Henninger and Wong teach the method of claim 10

wherein the registering at least one files comprises:

        sending, by the client to. the server, a register file message ([0098]); and

        sending, by the server to the client, a register file. completion message ([0098]).

22.   As to claim 12, Pandya, Henninger and Wong teach the method of claim 9

wherein the authenticating the RDMA connection further comprises:

        sending, by the client, an authenticate request message to the server, the

authenticate request message including a key ([0127]);

        if the key matches a previous key sent by the server to the client, sending, by the

server, an authenticate response message to the client ([0127]).

23.   As to claim 13, Pandya, Henninger and Wong teach the method of claim 12

wherein the previous key is a key contained in a negotiate response message sent by

the server to the client ([0127]).

24.   As to claim 14, Pandya, Henninger and Wong teach the method of claim 12,

further comprising: sending, by the server to the client, a status response message to

complete the authenticating ([0127]).

25.   As to claim 15, Pandya, Henninger and Wong teach the method of claim 7

wherein the

posting the I/O processing request comprises sending, by the client, one of (a) a close

request, (b) a cancel request, (c) a read request, (d) a 5 write request, (e) a vectored

read request and (f) a vectored write request ([0140]).

26.   As to claim 16, Pandya, Henninger and Wong teach the method of claim 15,

further comprising:

        completing, by the server, the read request and the vectored read request by

sending data using RDMA write operations ([0165]); and

        completing, by the server, the write request and the vectored write request by

sending data using normal send operations ([0165]).

27.   As to claim 18, Pandya, Henninger and Wong teach the method of claim 7

wherein posting the I/O processing request further includes indicating whether the

completion by the server should be in polling mode ([0115]).

28.   As to claim 20, Pandya, Henninger and Wong teach the method of claim 18,

further comprising: if the client indicates that the completion should not be in polling

mode, completing, by the server, the I/O processing request by sending a status block

to the first computer by way of RDMA transfer ([0100]).

29.   As to claim 21, Pandya, Henninger and Wong teach the method of claim 18,

further

comprising: if the client indicates that the completion should be in polling mode,

and the client has sent an interrupt request message to the server, sending, by

the server to the client, an interrupt response message by way of an ordinary

send ([0112]).

30.   As to claim 22, Pandya, Henninger and Wong teach the method of claim 7

wherein

posting the I/O processing request further includes specifying a number of credits

in a header of the request ([0124]).

31.   As to claim 23, Pandya teaches a computer-readable media comprising:

        discovering, by a client on the first computer and a server on the second

computer ([0100] - discovery), at least one shared remote direct memory access

(RDMA)-capable provider,

        wherein the first computer requests a server request resume key and the second

computer passes the server request resume key as an authentication mechanism,

wherein requesting and passing the request resume key comprises:

        create, by the client, an RDMA connection to the server over a shared RDMA-

capable provider (figure 37); and

authenticate, by the client and the server, the RDMA connection, wherein

authenticate the RDMA connection (page 10, paragraph 115; Pandya discloses that the

computer readable medium of authenticating the packet) comprises:

in response to receiving the message from the client, send by the server, a

response for each message received from the client (page 5, paragraph 93; Pandya

discloses that the computer readable medium of response transactions), and

wherein after authentication, the first computer opens a pipe to the second

computer and queries the second computer for a list of shared RDMA-capable providers

(figure 18 & 28; [0115], [0127]); and

posting, by the client, an I/O processing request for completion by the server on

the second computer ([0112] - storage offload), wherein read operations are

implemented using RDMA ([0140]).

But Pandya failed to teach the claim limitation wherein sending, by the server, a

credit request message, wherein the credit request message comprises one of the

following: the number of credits the client have to give up and the number of credits

that the server has newly allocated for use by the client; receiving, by the client, the

credit request message; in response to the client receiving the credit request message,

sending, from the client to the server, one of the following: one message if an

information field in the credit request message is positive, wherein the positive credit

request message comprises credits that the server has newly allocated for use by the

client, and at least one message if the information field in the credit request message is

negative, wherein the negative credit request message comprises one message for

each credit that the client has to give up; and write operations are implemented using

send operations, wherein the write operations are not implemented using RDMA.

However, Henninger teaches the limitation wherein write operations are

implemented using send operations, wherein the write operations are not implemented

using RDMA (col 10, lines 33-45; col 11, lines 55-60; col 12, lines 3-5 & 15-17).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify Pandya in view of Henninger so that the system would be able to

retrieve query command from the database for a particular object instance. One would

be motivated to do so to map information between a database and an object-oriented

application.

However, Wong teaches the limitation wherein sending, by the server, a credit

request message, wherein the credit request message comprises one of the following:

the number of credits the client have to give up and the number of credits that the

server has newly allocated for use by the client (figure 5-6); receiving, by the client, the

credit request message (figure 3); in response to the client receiving the credit request

message, sending, from the client to the server, one of the following: one message if an

information field in the credit request message is positive, wherein the positive credit

request message comprises credits that the server has newly allocated for use by the

client, and at least one message if the information field in the credit request message is

negative, wherein the negative credit request message comprises one message for

each credit that the client has to give up (page 1, paragraph 5-6 & 10-11; page 2,

paragraph 27, 30 & 32).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify Pandya in view of Wong so that the system would be able to decide

based upon the policy terms agreed upon between a client and a ISP the quality of

service provided to a subscriber. One would be motivated to do so to avoid the

congestion and packet loss for the qualified subscribers.

32.   Claims 6 & 7 disclose a computer readable and method claims and do not teach

or define any new limitations above claim 1 and therefore are rejected for similar

reasons.

33.   Claims 4, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Pandya, Patent No. 2004/0010612 A1 in view of Henninger, Patent No. 5,499,371,

Wong, Patent No. 2004/0003069 A1, and further in view of Considine, Patent No.

2004/0117438 A1.

        Pandya teaches the invention substantially as claimed including high

performance IP processor using RDMA (see abstract).

34.   As to claim 4, Pandya, Henninger and Wong teach the system as recited in claim

3. Pandya, Henninger and Wong failed to teach the claim limitation wherein the second

protocol is a server message block (SMB).

However, Considine teaches switching system (see abstract). Considine teaches the limitation wherein the second protocol is a server message block (SMB) ([0085]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination of Pandya, Henninger and Wong in view of Considine so that the system would be able to ensure the TCP connection. One would be motivated to do so to simplify and improved the system.

35.   As to claim 17, Pandya, Henninger and Wong teach the method as recited in claim 15. But Pandya, Henninger and Wong failed to teach the claim limitation wherein the vectored write request includes a collapse flag in a header of the request.

However, Considine teaches the limitation wherein the data flow is denoted via implementation of various flags ([0528]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination of Pandya, Henninger and Wong in view of Considine so that the system would be able to enhance the flexibility and compatibility of the system. One would be motivated to do so to simplified and improve the system.

36.   As to claim 19, Pandya, Henninger and Wong teach the method as recited in claim 18. But Pandya, Henninger and Wong failed to teach the claim limitation wherein the indicating whether the completion should be in polling mode comprises indicating that the completion should not be in polling mode by setting an interrupt flag in a header of the I/O processing request.

However, Considine teaches the limitation wherein the indicating whether the completion should be in polling mode comprises indicating that the completion should not be in polling mode by setting an interrupt flag in a header of the I/O processing request ([0528]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination of Pandya, Henninger and Wong in view of Considine so that setting a flag in a header. One would be motivated to do so to simplify and improved the system.

Response to Arguments

Applicant's arguments with respect to claims 1, 6-7, & 23 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments include the failure of previously applied art to expressly disclose "sending, by the server, a credit request message, wherein the credit request message comprises one of the following: the number of credits the client have to give up and the number of credits that the server has newly allocated for use by the client; in response to the client receiving the credit request message, sending, from the client to the server, one of the following: one message if an information field in the credit request message is positive, wherein the positive credit request message comprises credits that the server has newly allocated for use by the client, and at least one message if the information field in the credit request message is negative, wherein the negative credit request message comprises one message for each credit that the client has to give up" (see Applicant's response,

2/13/09, page 13, paragraph 4). It is evident from the detailed mappings found in the above rejection(s) that Wong disclosed this functionality (see Wong, page 1, paragraph 5-6 & 10-11; page 2, paragraph 27, 30 & 32). Further, it is clear from the numerous teachings (previously and currently cited) that the provision for "sending, by the server, a credit request message, wherein the credit request message comprises one of the following: the number of credits the client have to give up and the number of credits that the server has newly allocated for use by the client; in response to the client receiving the credit request message, sending, from the client to the server, one of the following: one message if an information field in the credit request message is positive, wherein the positive credit request message comprises credits that the server has newly allocated for use by the client, and at least one message if the information field in the credit request message is negative, wherein the negative credit request message comprises one message for each credit that the client has to give up" was widely implemented in the networking art. Thus, Applicant's arguments drawn toward distinction of the claimed invention and the prior art teachings on this point are not considered persuasive.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuong (Tina) T. Nguyen whose telephone number is

571-272-3864, and the fax number is 571-273-3864. The examiner can normally be

reached on 9:00AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

/Thuong (Tina) T Nguyen/
Examiner, Art Unit 2455

/saleh najjar/
Supervisory Patent Examiner, Art Unit 2455